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EXAMINER
STEELE, AMBER D

ART UNIT	PAPER NUMBER
1639	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SIP_Docket@mwe.com

Office Action Summary	Application No.	Applicant(s)	
	10/799,934	KELLY ET AL.	
	Examiner	Art Unit	
	AMBER D. STEELE	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *48-51,54,57,59-61,66-69,72,75,78-80,91 and 92-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 1-47,52,53,55,56,58,60-65,70,71,73,74,76,77 and 81-90.

DETAILED ACTION

Status of the Claims

1. The amendment to the claims received on February 28, 2007 added status identifiers only.

The amendment to the claims received on November 21, 2008 amended claims 48, 50-51, 66, and 68-69.

The amendment to the claims received on August 10, 2009 added new claims 91-92.

The amendment to the claims received on February 4, 2010 amended claims 48, 49, 66, and 67 and added new claims 93-96.

Claims 1-96 are currently pending.

Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are currently under consideration.

Election/Restrictions

2. Applicants elected, without traverse, Groups VI-VII (i.e. rejoined Groups VI-VII; no traversal of restriction between other groups) in the reply filed on February 28, 2007. Claims 1-47, 63-65, and 82-90 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim.

3. Applicants elected, without traverse, a singular antenna moiety as the species of antenna moiety, competitive binding as the species of identification, and 2D NOESY as the species of NOESY in the reply filed on February 28, 2007. Claims 52-53, 55-56, 58, 70-71, 73-74, 76-77,

and 81 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim.

Priority

4. The present application claims the benefit of U.S. provisional application 60/455,610 filed March 13, 2003.

Withdrawn Objection

5. The objection of claims 60-61 is withdrawn in view of the altered status identifiers in the claim amendment received on February 4, 2010.

New Objection

Claim Objections

6. Claim 67 is objected to because of the following informalities: "attached to the antenna moiety" should be deleted based on the amendment to independent claim 66 (see claim 49). Appropriate correction is required.

New Rejection Necessitated by Amendment

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 93-96 are rejected under 35 U.S.C. 102(e) as being anticipated by Sem et al. U.S. Patent 7,653,490 (filed June 13, 2002; effective filing date of September 10, 2001).

The applied reference has a common assignee and inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

For present claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 93-96, Sem et al. teach methods comprising (a) providing a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety nad an NMR visible nucleus of the antenna moiety, (b) providing a sample comprising a protein, ligand-probe, and a second protein, (c) detecting magnetization transfer signals via NOESY including 2D NOESY, (d) obtaining candidate binding compounds wherein the ligand-probe may contain a common ligand and utilization of competitive binding, homologs, structure modeling, covalent bonds, deuterium, estimation of distances, etc. (please refer to the entire specification particularly the abstract; columns 2-6, 9-10, 22-23, 25-28, and 32; Examples; claims).

Therefore, the presently claimed invention is anticipated by the teachings of Sem et al.

Altered Rejections Necessitated by Amendment

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are rejected under 35 U.S.C. 103(a) as being obvious over Sem et al. U.S. Patent 7,653,490 (filed June 13, 2002; effective filing date of September 10, 2001) and Sem U.S. Patent 6,333,149 issued December 25, 2001.

The applied reference has a common assignee and inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome

by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

For present claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 93-96, Sem et al. teach methods comprising (a) providing a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety nad an NMR visible nucleus of the antenna moiety, (b) providing a sample comprising a protein, ligand-probe, and a second protein, (c) detecting magnetization transfer signals via NOESY including 2D NOESY, (d) obtaining candidate binding compounds wherein the ligand-probe may contain a common ligand and utilization of competitive binding, homologs, structure modeling, covalent bonds, deuterium, estimation of distances, etc. (please refer to the entire specification particularly the abstract; columns 2-6, 9-10, 22-23, 25-28, and 32; Examples; claims).

However, Sem et al. does not teach the specific amtenna moieties of present claims 91 and 92.

For present claims 48 and 66, Sem teaches methods for rapidly identifying drug candidates that bind an enzyme at both a common ligand site and a specificity ligand site wherein the drug candidates are screened from a focused combinatorial library comprising (a) providing a CL or common ligand attached to an isotope or antenna moiety, (b) providing a sample or a library of samples comprising an enzyme or protein, CL/isotope, and a mimic and/or SL (i.e. second ligand and/or homolog) that can form a binary and/or ternary complex, (c) utilizing NMR and thus the magnetization of NMR including NOESY to obtain signals and spectrum to determine the proximity of the CL, SL, mimic, and/or enzyme, (d) obtaining a library of mimics covalently linked to CL (please refer to the entire specification particularly

abstract; Figures 1A-7B; columns 1-13; Examples; claims). For present claims 49 and 67, Sem teaches CL or common ligand including NADH or NADD (i.e. ligand-probe) attached to an isotope or with a hydrogen to deuterium substitution (i.e. antenna moiety; please refer to the entire specification particularly column 16, lines 51-65). For present claims 50 and 68, Sem teaches obtaining a library of binary and/or ternary complexes including CL or common ligand linked to a mimic or second ligand homolog (please refer to the entire specification particularly Figures 1A, 1B, 2A, 2B, 3A, 3B, 3C, 4B, 5A, 5B, 5C, 5D; columns 7-8, 10-11, 16). For present claims 51 and 69, Sem teaches potential linkages between the isotope or antenna moiety and the mimic or second ligand homolog (please refer to the entire specification particularly Figures; columns 7, 10). For present claims 54 and 72, Sem teaches competitive binding (please refer to the entire specification particularly columns 7-8 particularly the paragraph spanning the columns; column 15, lines 30-49; column 17, liens 37-54). For present claims 57 and 75, Sem teaches deuterium isotopes (please refer t the entire specification particularly column 3, lines 22-28; column 6, lines 66-67; column 7, lines 1-8; column 8, lines 20-44; columns 9-10, 16). For present claims 59-60 and 78-79, Sem teaches identifying the atom of the isotope proximal to the atom of the mimic or SL/specificity ligand site and also determining the distance (i.e. second ligand; please refer to the entire specification particularly columns 7-11). For present claims 61 and 80, Sem teaches 2D NOESY (please refer to the entire specification particularly column 3, lines 22-46; column 9).

For present claims 91-92 Sem teaches ^{15}N and ^{13}C (please refer to the entire specification particularly Figures 6A-6B and 7A; columns 3, 7, 9-10, 17; claims 26-27).

The claims would have been obvious because a particular known technique (i.e. utilization of ^{15}N and ^{13}C in 2D NOESY or utilization of at least one atom between an antenna molecule and a ligand) was recognized as part of the ordinary capabilities of one skilled in the art. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-33 of U.S. Patent No. 6,333,149 in view of Sem et al. U.S. Patent 7,653,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the presently claimed method and the method of U.S. Patent 6,333,149 comprise identifying homologs/mimics of proteins/enzymes.

For present claims 48 and 66, U.S. Patent 6,333,149 claims methods comprising (a) providing a CL (i.e. ligand-probe) with an atom (i.e. antenna) and an enzyme (i.e. protein), (b) providing a CL mimic and/or a SL (i.e. second ligand), (c) performing NMR (i.e. magnetization transfer signals between atoms to determine proximity) including NOESY, (d) identifying the CL mimic thus obtaining candidate binding compounds (please refer to claims 1-4 and 29).

For present claims 49 and 67, U.S. Patent 6,333,149 claims an atom of the CL (i.e. antenna attached to the common ligand; please refer to claims 1-4, 20, 22).

For present claims 50 and 68, U.S. Patent 6,333,149 claims CL linked or in proximity to SL or CL mimic (i.e. second ligand; please refer to claims 1-4, 14, 21).

For present claims 51 and 69, U.S. Patent 6,333,149 claims proximity (i.e. linkage) between CL atoms and CL mimic atoms or SL atoms (please refer to claims 1-4, 14, 21).

For present claims 54 and 72, U.S. Patent 6,333,149 claims competitive binding (please refer to claims 1-4).

For present claims 57 and 75, U.S. Patent 6,333,149 claims deuterium (please refer to claim 31).

For present claims 59-60 and 78-79, U.S. Patent 6,333,149 claims identifying atoms and distance via Angstroms (please refer to claims 1-4 and 32-33).

For present claims 61 and 80, U.S. Patent 6,333,149 claims two dimensional NOESY wherein the two dimensional is produced via combing two one dimensional spectrums (please refer to claims 1-4 and 29).

For present claims 91-92, U.S. Patent 6,333,149 claims ^{15}N (please refer to claims 26-27).

However, U.S. Patent 6,333,149 does not claim a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety.

For present claims 48, 66, and 93-96, Sem et al. (U.S. Patent 7,653,490) teach a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety, estimated distances of 6 angstroms or less, and estimating distances based on summation of bond lengths while taking into account bond angles (please refer to the entire specification particularly columns 9, 10, 25, and 26).

The claims would have been obvious because a particular known technique (i.e. utilization of at least one atom between an antenna molecule and a ligand and estimation of

distances) was recognized as part of the ordinary capabilities of one skilled in the art. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

13. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-62 of U.S. Patent No. 6,620,589 in view of Sem et al. U.S. Patent 7,653,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the presently claimed method and the method of U.S. Patent 6,620,589 comprise identifying homologs/mimics of proteins/enzymes.

For present claims 48 and 66, U.S. Patent 6,620,589 claims methods comprising (a) providing a CL (i.e. ligand-probe) with an atom (i.e. antenna) and an enzyme (i.e. protein), (b) providing a CL mimic and/or a SL (i.e. second ligand), (c) performing NMR (i.e. magnetization transfer signals between atoms to determine proximity) including NOESY, (d) identifying the CL mimic thus obtaining candidate binding compounds (please refer to claims 1-2, 8, 44, 47, 55-56, 59-62).

For present claims 49 and 67, U.S. Patent 6,620,589 claims an atom of the CL (i.e. antenna attached to the common ligand; please refer to claims 1-5, 8-12, 44, 55-56, 59-62).

For present claims 50 and 68, U.S. Patent 6,620,589 claims CL linked or in proximity to SL or CL mimic (i.e. second ligand; please refer to claims 1-5, 8-12, 55-56, 59-62).

For present claims 51 and 69, U.S. Patent 6,620,589 claims proximity (i.e. linkage) between CL atoms and CL mimic atoms or SL atoms (please refer to claims 1-5, 8-12, 55-56, 59-62).

For present claims 54 and 72, U.S. Patent 6,620,589 claims competitive binding (please refer to claims 1-2, 8, 55-56, 59-62).

For present claims 57 and 75, U.S. Patent 6,620,589 claims deuterium (please refer to claims 49, 51-52, 57).

For present claims 59-60 and 78-79, U.S. Patent 6,620,589 claims identifying atoms and distance via Angstroms (please refer to claims 1-2, 8, 44, 53-56, 59-62).

For present claims 61 and 80, U.S. Patent 6,620,589 claims two dimensional NOESY wherein the two dimensional is produced via combing two one dimensional spectrums (please refer to claims 1-2, 8, 44, 47, 55-56, 59-62).

For present claims 91-92, U.S. Patent 6,620,589 claims ^{13}C and ^{15}N (please refer to claims 39-42 and 45-47).

However, U.S. Patent 6,620,589 does not claim a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety.

For present claims 48, 66, and 93-96, Sem et al. (U.S. Patent 7,653,490) teach a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety, estimated distances of 6 angstroms or less, and estimating distances based on summation of bond lengths while taking into account bond angles (please refer to the entire specification particularly columns 9, 10, 25, and 26).

The claims would have been obvious because a particular known technique (i.e. utilization of at least one atom between an antenna molecule and a ligand and estimation of

distances) was recognized as part of the ordinary capabilities of one skilled in the art. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

14. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-160 of U.S. Patent No. 6,797,460 in view of Sem et al. U.S. Patent 7,653,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the presently claimed method and the method of U.S. Patent 6,797,460 comprise identifying homologs/mimics of proteins/enzymes.

For present claims 48 and 66, U.S. Patent 6,797,460 claims methods comprising (a) providing a CL (i.e. ligand-probe) with an atom (i.e. antenna) and an enzyme (i.e. protein), (b) providing a CL mimic and/or a SL (i.e. second ligand), (c) performing NMR (i.e. magnetization transfer signals between atoms to determine proximity) including NOESY, (d) identifying the CL mimic thus obtaining candidate binding compounds (please refer to claims 1, 33, 36, 41, 73, 76, 81, 113, 116, 121, 153, 156).

For present claims 49 and 67, U.S. Patent 6,797,460 claims an atom of the CL (i.e. antenna attached to the common ligand; please refer to claims 1, 33, 36, 41, 73, 76, 81, 113, 116, 121, 153, 156).

For present claims 50 and 68, U.S. Patent 6,797,460 claims CL linked or in proximity to SL or CL mimic (i.e. second ligand; please refer to claims 1, 33, 36, 41, 73, 76, 81, 113, 116, 121, 146-148, 153, 156).

For present claims 51 and 69, U.S. Patent 6,797,460 claims proximity (i.e. linkage) between CL atoms and CL mimic atoms or SL atoms (please refer to claims 1, 33, 36, 41, 73, 76, 81, 113, 116, 121, 146-148, 153, 156).

For present claims 54 and 72, U.S. Patent 6,797,460 claims competitive binding (please refer to claims 1, 33, 36, 41, 73, 76, 81, 113, 116, 121, 153, 156).

For present claims 57 and 75, U.S. Patent 6,797,460 claims deuterium (please refer to claims 38, 78).

For present claims 59-60 and 78-79, U.S. Patent 6,797,460 claims identifying atoms and distance via Angstroms (please refer to claims 1, 33, 36, 39-41, 73, 76, 79-81, 113, 116, 119-121, 153, 156, 159-160).

For present claims 61 and 80, U.S. Patent 6,797,460 claims two dimensional NOESY wherein the two dimensional is produced via combing two one dimensional spectrums (please refer to claims 33, 35-36, 73, 76, 113, 116, 153, 156).

For present claims 91-92, U.S. Patent 6,797,460 claims ^{13}C and ^{15}N (please refer to claims 28-31, 34-36, 68-69, 71, 74-76, 109-111, 114-116, 148-151, and 154-156).

However, U.S. Patent 6,797,460 does not claim a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety.

For present claims 48, 66, and 93-96, Sem et al. (U.S. Patent 7,653,490) teach a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety, estimated distances of 6 angstroms or less, and estimating distances based on summation of bond lengths

while taking into account bond angles (please refer to the entire specification particularly columns 9, 10, 25, and 26).

The claims would have been obvious because a particular known technique (i.e. utilization of at least one atom between an antenna molecule and a ligand and estimation of distances) was recognized as part of the ordinary capabilities of one skilled in the art. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

15. Claims 48-51, 54, 57, 59-61, 66-69, 72, 75, 78-80, and 91-96 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-42 of U.S. Patent 7,252,931 in view of Sem et al. U.S. Patent 7,653,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the presently claimed method and the method of U.S. Patent 7,252,931 comprise identifying homologs/mimics of proteins/enzymes.

For present claims 48 and 66, U.S. Patent 7,252,931 claims methods comprising (a) providing a CL (i.e. ligand-probe) with an atom (i.e. antenna) and an enzyme (i.e. protein), (b) providing a CL mimic and/or a SL (i.e. second ligand), (c) performing NMR (i.e. magnetization transfer signals between atoms to determine proximity) including NOESY, (d) identifying the CL mimic thus obtaining candidate binding compounds (please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 49 and 67, U.S. Patent 7,252,931 claims an atom of the CL (i.e. antenna attached to the common ligand; please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 50 and 68, U.S. application 10/884,181 claims CL linked or in proximity to SL or CL mimic (i.e. second ligand; please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 51 and 69, U.S. Patent 7,252,931 claims proximity (i.e. linkage) between CL atoms and CL mimic atoms or SL atoms (please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 54 and 72, U.S. Patent 7,252,931 claims competitive binding (please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 57 and 75, U.S. Patent 7,252,931 claims deuterium (please refer to previous claim 98).

For present claims 59-60 and 78-79, U.S. Patent 7,252,931 claims identifying atoms and distance via Angstroms (please refer to previous claims 98-100).

For present claims 61 and 80, Patent 7,252,931 claims two dimensional NOESY wherein the two dimensional may be produced via combing two one dimensional spectrums (please refer to previous claims 59-61, 86-91, 93-96, 98-100).

For present claims 91-92, U.S. Patent 7,252,931 claims ^{13}C and ^{15}N (please refer to claims 36-38).

However, U.S. Patent 7,252,931 does not claim a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes between the ligand moiety and an NMR visible nucleus of the antenna moiety.

For present claims 48, 66, and 93-96, Sem et al. (U.S. Patent 7,653,490) teach a ligand-probe having an antenna moiety and a ligand moiety wherein at least one atom intervenes

between the ligand moiety and an NMR visible nucleus of the antenna moiety, estimated distances of 6 angstroms or less, and estimating distances based on summation of bond lengths while taking into account bond angles (please refer to the entire specification particularly columns 9, 10, 25, and 26).

The claims would have been obvious because a particular known technique (i.e. utilization of at least one atom between an antenna molecule and a ligand and estimation of distances) was recognized as part of the ordinary capabilities of one skilled in the art. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Future Communications

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMBER D. STEELE whose telephone number is (571)272-5538. The examiner can normally be reached on Monday through Friday 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amber D. Steele/
Primary Examiner, Art Unit 1639